

## CLAIMS

1. A receiving apparatus, comprising:  
demodulation means for demodulating a  
reception signal to a signal on a real axis and a  
5 signal on an imaginary axis;

C/N ratio calculation means for calculating a  
C/N ratio with the amplitudes in an amplitude direction  
of signal points of the demodulation signal demodulated  
by said demodulation means and a C/N ratio with the  
10 amplitudes in a phase direction of the signal points of  
the demodulation signal demodulated by said  
demodulation means;

phase noise detection means for detecting  
phase noise on the basis of the C/N ratio calculated  
15 with the amplitudes in the amplitude direction and the  
C/N ratio calculated with the amplitudes in the phase  
direction; and

indication means for indicating the C/N  
ratios calculated by said C/N ratio calculation means  
and the phase noise detected by said phase noise  
20 detection means.

2. The receiving apparatus as set forth in  
claim 1,

wherein said demodulation means has phase  
25 compensation means for compensating a phase with an  
external compensation signal, and

wherein when the phase noise takes place,

said phase compensation means compensates the phase.

3.           The receiving apparatus as set forth in claim  
1,

              wherein when the phase noise calculated on  
5     the basis of the C/N ratio calculated with the  
       amplitudes in the amplitude direction and the C/N ratio  
       calculated with the amplitudes in the phase direction  
       is equal to or larger than a predetermine value, said  
       indication means indicates an alarm.

10     4.           The receiving apparatus as set forth in claim  
       1,

              wherein said indication means indicates the  
       phase noise calculated on the basis of the C/N ratio  
       calculated with the amplitudes in the amplitude  
15     direction and the C/N ratio calculated with the  
       amplitudes in the phase direction as a numeric value.

5.           A C/N ratio indication method for a receiving  
apparatus, the method comprising the steps of:

              demodulating a reception signal to a signal  
20     on a real axis and a signal on an imaginary axis;

              calculating a C/N ratio with the amplitudes  
       in an amplitude direction of signal points of the  
       demodulation signal demodulated by said demodulation  
       means and a C/N ratio with the amplitudes in a phase  
25     direction of the signal points of the demodulation  
       signal demodulated by said demodulation means;

              determining whether phase noise takes place

on the basis of the C/N ratio calculated with the amplitudes in the amplitude direction and the C/N ratio calculated with the amplitudes in the phase direction; and

5                    indicating the C/N ratios calculated by said C/N ratio calculation means and the phase noise detected by said phase noise detection means.

6.            The C/N ratio indication apparatus for the receiving apparatus as set forth in claim 5,

10                    wherein when the phase noise calculated on the basis of the C/N ratio calculated with the amplitudes in the amplitude direction and the C/N ratio calculated with the amplitudes in the phase direction is equal to or larger than a predetermine value, said  
15 indication means indicates an alarm.

7.            The C/N ratio indication apparatus for the receiving apparatus as set forth in claim 5,

                  wherein said indication means indicates the phase noise calculated on the basis of the C/N ratio  
20 calculated with the amplitudes in the amplitude direction and the C/N ratio calculated with the amplitudes in the phase direction as a numeric value.